REMARKS/ARGUMENTS

The Examiner found that claims 6, 16, and 30 would be allowed if rewritten in independent form. (Office Action, pg. 7) Applicants submit that these claims are patentable over the cited art in their current form because the base claims 1, 11, and 25 from which they depend are patentable over the cited art for the reasons discussed below.

Claims 11 and 23 are amended to remove the limitation reference numerals.

1. Claims 1-4, 8-14, 17-28, and 32-34 are Patentable Over the Cited Art

The Examiner rejected claims 1-4, 8-14, 17-28, and 32-34 as anticipated (35 U.S.C. §102(b)) by Crayford (U.S. Patent No. 5,610,903). Applicants traverse.

Independent claims 1, 11, 23, and 25 require establishing a connection with a link partner at a common transmission speed; setting a duplex mode used for transmissions to a first duplex mode; monitoring a transmission error rate with the link partner; changing the duplex mode to a second duplex mode in response to detecting that the transmission error rate exceeds a threshold.

The Examiner cited col. 5, lines 25-37 and col. 7, lines 25-28 of Crayford as disclosing the requirements of these claims. (Office Action, pg. 2) Applicants traverse.

The cited col. 5 discusses determining whether two stations have half or full duplex capabilities. The system provides a specified pattern of link test pulses from a first station indicating that the station is full duplex capable, but is transmitting in half duplex mode. A second station receives the specified pattern of link test pulses and then enters the full duplex mode. Thereafter, the specified pattern of link test pulses is provided to the first station from the second station and the first station then enters the full duplex mode.

The cited col. 5 discusses how to send a test pattern to indicate a transmission mode to allow the first and second stations to negotiate a proper duplex mode. Nowhere does this cited col. 5 anywhere disclose or mention monitoring for a transmission error rate with the link partner and then changing the set and established first duplex mode to a second duplex mode in response to detecting that the error exceeds a threshold. Instead, the cited col. 5 has the first station sending a pattern of link test pulses to indicate the transmission mode that the first station can use to communicate. This does not disclose monitoring for an error and changing the duplex mode in response to detecting the error.

The cited col. 7 mentions that a medium attached unit (MAU) sends a signal quality error (SQE) test message. This requires the MAU to test as much of its collision detection logic. Although the cited col. 7 discusses a unit sending a signal quality error test message, this does not disclose monitoring a transmission for an error rate and changing the duplex mode if the error rate exceeds a threshold. Instead, the cited col. 7 discusses sending a signal quality error test message, which is not the cited monitoring of a transmission for an error rate to determine whether to change the duplex mode.

Accordingly, claims 1, 11, 23, and 25 are patentable over the cited art because the cited Crayford does not disclose all the claim requirements.

Claims 2-4, 8-10, 12-14, 17-22, 24, 26-28, and 32-34 are patentable over the cited art because they depend from one of base claims 1, 11, 23, and 25, which are patentable over the cited art for the reasons discussed above.

Claims 2, 12, 24, and 26 depend from claims 1, 11, 23, and 25, respectively, which require that the duplex mode is changed without terminating the connection with the link partner.

The Examiner cited lines 6-7 of the Abstract of Crayford as disclosing this claim requirement. (Office Action, pg. 2) Applicants traverse.

The cited Abstract mentions that the cited operation of providing a specified pattern of link test pulses to provide for the indication of enhanced capabilities is particularly useful for determining whether a particular station is in full duplex or half duplex mode without affecting overall network performance.

Nowhere does the cited Abstract disclose or mention changing the duplex mode between link partners without terminating the connection. Instead, the cited Abstract mentions that a benefit of its technique for providing test pulses so stations may determine a mode at which to communication allows determination of the mode without affecting overall network performance. This does not disclose that two stations change their duplex mode when detecting an error without terminating their connection. Instead, the cited Abstract discusses how to determine whether a station is in full or half duplex mode, not the claim requirements concerning changing the duplex mode without terminating a specific connection.

Accordingly, claims 2, 12, 24, and 26 provide additional grounds of patentability over the cited art because the additional requirements of these claims are not disclosed in the cited Crayford.

Claims 9, 19, and 33 depend from claims 1, 11, and 25, respectively, and further require that the monitored transmission error rate comprises a bit error ratio of a number of bits received in error to a total number of bits received within a predefined time window.

The Examiner cited col. 7, lines 25-28 of Crayford as disclosing the additional requirements of these claims. (Office Action, 3) Applicants traverse.

The cited col. 7 mentions that a medium attached unit (MAU) sends a signal quality error (SQE) test message. This requires the MAU to test as much of its collision detection logic. Although the cited col. 7 discusses a unit sending a signal quality error test message, this does not disclose monitoring for a transmission error rate comprising a bit error ratio of a number of bits received in error to total received within a time window. The cited col. 7 nowhere discloses or mentions monitoring for a bit error ratio as claimed, and instead the cited col. 7 discusses a unit sending a signal quality error message.

Accordingly, claims 9, 19, and 33 provide additional grounds of patentability over the cited art because the additional requirements of these claims are not disclosed in the cited Crayford.

Claims 10, 20, and 34 depend from claims 1, 11, and 25, respectively, and further require continuing to monitor the transmission error rate with the link partner after changing the duplex mode; and changing the duplex mode from one of the first to second duplex mode or from the second to first duplex mode in response to detecting that the transmission error rate exceeds the threshold.

The Examiner cited the above discussed cols.5 and 7 of Crayford as disclosing the additional requirements of these claims. (Office Action, pg. 3) Applicants submit that these claims provide additional grounds of patentability over the cited art because they recite performing another iteration of monitoring and changing the duplex mode after changing the duplex mode. Because the cited cols. 5 and 7 do not disclose one iteration of these operations as discussed with respect to claims 1,11, and 25, these cited columns consequentially also fail to disclose an additional iteration of these operations as claimed.

Accordingly, claims 10, 20, and 34 provide additional grounds of patentability over the cited art because the additional requirements of these claims are not disclosed in the cited Crayford.

2. Claims 5, 7, 15, 17, 29, and 31 are Patentable Over the Cited Art

The Examiner rejected claims 5, 7, 15, 17, 29, and 31 as obvious (35 U.S.C. §103(a) over Crayford in view of Yang (U.S. Patent No. 5,414,700). Applicants traverse.

These claims are patentable over the cited art because they depend from one of claims 1, 11, and 25, which are patentable over the cited art for the reasons discussed above. Moreover, the following dependent claims provide additional grounds of patentability over the cited art.

Claims 5, 15, and 29 depend from claims 1, 11, and 25, respectively, and further require that the duplex mode is changed to the second duplex mode by setting a flag in a hardware register to cause the hardware to transmit in the second duplex mode while maintaining the connection with the link partner.

The Examiner cited col. 13, lines 14-19 of Yang as teaching these additional claim requirements. (Office Action, pg. 6) Applicants traverse.

The cited col. 13 mentions an EnteringFDX binary flag indicating a transition into full duplex operation starting on receipt of an FDX ack frame. Although the cited col. 13 mentions a flag providing information on transition to full duplex mode, this does not teach setting a flag to cause hardware to change transmitting to second duplex mode while maintaining the connection. The Examiner has not cited where Yang teaches changing the duplex mode while the connection with the link partner is maintained.

The Examiner further cited col. 12, lines 46-57 of Yang. (Office Action, pg. 6) This cited col. 12 discusses variables used in the node test and full duplex control protocol, such as a variable indicating whether full duplex operation is enabled and the status of full duplex operation, a variable that determines the MAC's operational mode, and upstream and downstream neighbor addresses. Although variables related to full duplex mode are discussed, the cited col. 12 does not teach setting a flag to cause hardware to change transmitting to a second duplex mode while maintaining the connection. Instead, the cited variables concern indicating a duplex mode.

Accordingly, claims 5, 15, and 29 provide additional grounds of patentability over the cited art because the additional requirements of these claims are not taught or suggested in the cited Crayford and Yang.

Conclusion

For all the above reasons, Applicant submits that the pending claims 1-34 are patentable. Should any additional fees be required beyond those paid, please charge Deposit Account No. 50-0585.

The attorney of record invites the Examiner to contact him at (310) 553-7977 if the Examiner believes such contact would advance the prosecution of the case.

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By: /David Victor/
David W. Victor
Registration No. 39,867

Please direct all correspondences to:

David W. Victor
Konrad Raynes & Victor, LLP
315 South Beverly Drive, Ste. 210
Beverly Hills, CA 90212
Tel: (310) 553-7977
Fax: 310-556-7984